

# Cédric G. Fichot

## CURRICULUM VITAE

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Caltech Postdoctoral Scholar and Delta Science Fellow  
U.S. Permanent Resident

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## EDUCATION

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**Doctor of Philosophy**, *Marine Science* (May 2013)

University of South Carolina

Dissertation: *Transformations and fates of terrigenous dissolved organic matter in ocean margins*

Advisor: Dr. Ronald Benner

Marine biogeochemistry and photochemistry, remote sensing, ocean optics, chemical oceanography.

**Master of Science**, *Oceanography* (October 2004)

Dalhousie University

Thesis: *Marine photochemistry from space*

Advisor: Dr. William L. Miller

Marine photochemistry, ocean optics, remote sensing.

**Bachelor of Science**, *Marine and Environmental Studies* (May 2000)

Florida Institute of Technology

Fluency in English & French. Basic knowledge of Spanish and German.

## EMPLOYMENT

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**Caltech Postdoctoral Scholar and Delta Science Fellow** (January 2014 - Present)  
Earth Science Division, Jet Propulsion Laboratory, California Institute of Technology

**Postdoctoral Research Associate** (June 2013 to December 2013)  
University of South Carolina, Department of Biological Sciences

**Teaching Assistant** (January 2008 to December 2008)  
University of South Carolina, Marine Sciences Program

**Research Professional and Laboratory Coordinator** (January 2005 to December 2007)  
University of Georgia, Department of Marine Sciences

## HONORS and AWARDS

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**2013 Delta Science Fellowship** (2014-2016). \$169,376. California SeaGrant  
**USC 2013 Outstanding Dissertation Award** (2013). \$1,000. The Graduate School. University of South Carolina.  
**Dean's Dissertation Fellowship** (2012-2013). \$25,000. College of Arts and Sciences. University of South Carolina.  
**NASA Group Achievement Award** (2012). ICESCAPE project.  
**Dissertations in Chemical Oceanography (DISCO) Symposium invitation** (2012). Hawaii.  
**Graduate Student Day, 1<sup>st</sup>-place** (2012). Oral presentations. University of South Carolina.  
**Travel award** (2012, 2013). Graduate School, University of South Carolina.  
**Travel award** (2010, 2011, 2012, 2013). Marine Science Program, University of South Carolina.  
**Travel award** (2010). The Oceanography Society. Ocean Optics XX Meeting. Anchorage, AK.  
**Outstanding teaching award** (2009). Marine Science Program, University of South Carolina.  
**Best student paper award** (2004). Ocean Optics XVII. Fremantle, Western Australia.

## PROFESSIONAL SERVICES

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### Research assistant

- University of South Carolina, Marine Sciences Program (January 2009 to August 2012)
- Dalhousie University, Department of Oceanography (August 2000 to November 2004)

### Reviewer

*Journals:* Deep-Sea Research II, Geophysical Research Letters, Journal of Geophysical Research-Oceans, Remote Sensing of Environment, Estuarine Coastal and Continental Shelf Research, EGU Biogeosciences, Marine Chemistry, Geochimica et Cosmochimica Acta, Optics Express.

*Funding agencies (proposal):* NSF

### Session Chair

- DISCO Symposium: *The Nitrogen Cycle* (October 2012), Lihue, HI.
- Ocean Optics XVIII: *Recent advances in the study of chromophoric dissolved organic matter*. (October 2006), Montreal, QC, Canada.

**Treasurer** (2009 to 2012). Marine Science Graduate Student Organization.

**Secretary** (2001 to 2004). Dalhousie Oceanography Graduate Student Organization.

## FIELD EXPERIENCE

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### *Research expeditions (Total of 38 weeks at sea)*

**US R/V Endeavor** (October 2013). Atlantic Coast *UNOLS Chief Scientist Training Cruise*.  
**US R/V Healy** (June/July 2010). Chukchi sea (Arctic Ocean). *NASA ICESCAPE* project.  
**US R/V Cape Hatteras** (March 2010). Northern Gulf of Mexico. *GulfCarbon* project.  
**US R/V Hugh Sharp** (November 2009). Northern Gulf of Mexico. *GulfCarbon* project.  
**US R/V Cape Hatteras** (July 2009). Northern Gulf of Mexico. *GulfCarbon* project.  
**US R/V Cape Hatteras** (April 2009). Northern Gulf of Mexico. *GulfCarbon* project.  
**US R/V Cape Hatteras** (January 2009). Northern Gulf of Mexico. *GulfCarbon* project.  
**CCGS Amundsen** (July 2008). Beaufort Sea (Arctic Ocean). *Circumpolar Flaw Lead* project.  
**US R/V Cape Hatteras** (May 2006). South Atlantic Bight.  
**US R/V Walton Smith** (October 2005). South Atlantic Bight.  
**US R/V Cape Hatteras** (July 2005). South Atlantic Bight.  
**CCGS Martha Black** (July 2003). North Atlantic Ocean. *Canadian-SOLAS*.  
**US R/V Endeavor** (July 2002). Middle Atlantic Bight.  
**US R/V Pelican** (August 2001). Gulf of Mexico. *SWISS* project.  
**US R/V Delphinus** (May 1999). East Florida coast. *Undergraduate honours project*.

#### *Field work*

- Freshwater/Estuary sampling** (April 2014). California Bay-Delta, USA.  
**Freshwater/Estuary sampling** (June 2006, February/July 2007). Sapelo Island, GA, USA.  
**Freshwater/Estuary sampling** (2004). Nova Scotia, Canada.

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## TEACHING and MENTORING EXPERIENCE

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#### *Teaching*

- Guest lecturer** (Spring 2011). *The Living Ocean*. University of South Carolina.  
**Guest lecturer** (Spring 2010). *The Living Ocean*. University of South Carolina.  
**Teaching assistant** (Fall 2008). *Coastal environments*. University of South Carolina.  
**Teaching assistant** (Spring 2008). *The Ocean Environment*. University of South Carolina.  
**Guest lecturer** (Spring 2007). *Biological Oceanography*. University of Georgia.

#### *Mentoring*

- Chia-Jung Lu** (2013). *Visiting Scholar*. University of South Carolina.  
**Yuan Shen** (2009-2012). *Graduate student*. University of South Carolina.  
**Dandan Duan** (2012). *Visiting scholar*. University of South Carolina.  
**Yulong Zhang** (2011). *Visiting scholar*. University of South Carolina.  
**Elise Kennedy** (2010 to 2012). *Undergraduate student*. University of South Carolina.  
**Chris Parusa** (2009). *Undergraduate student*. University of South Carolina.

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## PROPOSALS and GRANTS

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**California SeaGrant: Delta Science Fellows Program** (Granted in 2013, \$169,376)  
Principal Investigator: Cedric G. Fichot

**National Science Foundation: Chemical Oceanography** (Granted in 2009)  
Co-writer. Principal Investigators: Ronald Benner and William L. Miller

**National Aeronautics and Space Administration: ROSES** (Granted in 2006)  
Co-writer. Principal Investigator: William L. Miller

**US Office of Naval Research: Environmental Optics** (Granted in 2005)  
Co-writer. Principal Investigator: William L. Miller

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## PEER-REVIEWED PUBLICATIONS

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#### *Submitted, or in preparation*

**Li P., L. Chen, Q. Huang, R. Benner, Y. Shen, and C. G. Fichot** (in prep.). Dynamics of dissolved organic matter in the Yangtze estuary and coastal waters. *Marine Chemistry*.

**Fichot C. G., B. Downing, B. Bergamaschi, L. Windham-Myers, M. Marvin-DiPasquale, D. Thompson, and M. Gierach** (in prep.). High-resolution remote sensing of water quality in the California Bay-Delta. *Water Resources Research*.

**Shen Y., C. G. Fichot, and R. Benner** (submitted). Hotspots of labile dissolved organic matter in the Northern Gulf of Mexico. *Biogeosciences*.

**Launois T., S. Belviso, L. Bopp, C. G. Fichot, and P. Peylin** (2014). A new model for the global biogeochemical cycle of carbonyl sulfide Part 1: Assessment of direct marine emissions with an oceanic general circulation and biogeochemistry model. *Atmos. Chem. Phys. Discuss.*, 14, 20677-20720, doi:10.5194/acpd-14-20677-2014

**Ortega-Retuerta E., C. G. Fichot, K. R. Arrigo, G. L. van Dijken, and F. Joux** (2014) Response of marine bacterioplankton to a massive under-ice phytoplankton bloom in the Chukchi Sea (Western Arctic Ocean). *Deep-Sea Res. II*, 105, 74-84, doi:10.1016/j.dsr2.2014.03.015

**Fichot C. G. and R. Benner** (2014). The fate of terrigenous dissolved organic carbon in a river-influenced ocean margin. *Global Biogeochem. Cycles*. doi:10.1002/2013GB004670

**Fichot C. G., S. E. Lohrenz, and R. Benner** (2014). Pulsed, cross-shelf export of terrigenous dissolved organic carbon from the Mississippi-Atchafalaya river system. *J. Geophys. Res. Oceans*, 119, doi:10.1002/2013JC009424

**Cao F., C. G. Fichot, S. B. Hooker, and W. L. Miller** (2014). Improved algorithms for accurate retrieval of UV/Visible diffuse attenuation coefficients in optically complex, inshore waters. *Remote Sens. Environ.*, 144, 11-27, doi:10.1016/j.rse.2014.01.003

**Fichot C. G., K. Kaiser, S. B. Hooker, R. M. W. Amon, M. Babin, S. Bélanger, S. A. Walker, and R. Benner** (2013). Pan-Arctic distributions of continental runoff in the Arctic Ocean. *Nature: Sci. Rep.*, 3, 1053, doi:10.1038/srep01053

→ Highlighted in *Science*, Editor's Choice, Vol. 339, doi:10.1126/science.339.6119.491-c

**Shen Y., C. G. Fichot, and R. Benner** (2012). Dissolved organic matter composition and bioavailability reflect ecosystem productivity in the western Arctic Ocean. *Biogeosciences*, 9, 4993-5005, doi:10.5194/bg-9-4993-2012

**Fichot C. G. and R. Benner** (2012). The spectral slope coefficient of chromophoric dissolved organic matter ( $S_{275-295}$ ) as a tracer of terrigenous dissolved organic carbon in river-influenced ocean margins. *Limnol. and Oceanogr.*, 57(5), 1453-1466, doi:10.4319/lo.2012.57.5.1453

**Shen Y., C. G. Fichot, and R. Benner** (2012). Floodplain influence on dissolved organic matter composition and export from the Mississippi-Atchafalaya River system to the Gulf of Mexico. *Limnol. and Oceanogr.*, 57(4), 1149-1160, doi:10.4319/lo.2012.57.4.0000

**Belviso S., I. Masotti, A. Tagliabue, L. Bopp, P. Brockmann, C. G. Fichot, and 9 authors** (2011). DMS dynamics in the most oligotrophic subtropical zones of the global ocean. *Biogeochemistry*, doi:10.1007/s10533-011-9648-1

**Fichot C. G., and R. Benner** (2011). A novel method to estimate DOC concentrations from CDOM absorption coefficients in coastal waters. *Geophys. Res. Lett.*, 38, L03610, doi:10.1029/2010GL046152

**Fichot C. G., and W. L. Miller** (2010). An approach to quantify depth-resolved marine photochemical fluxes using remote sensing: Application to carbon monoxide (CO) photoproduction. *Remote Sens. Environ.*, 114, 1363-1377, doi:10.1016/j.rse.2010.01.019

**Zhang Y., H. Xie, C. G. Fichot, G. Chen** (2008). Dark production of carbon monoxide (CO) from dissolved organic matter in the St. Lawrence estuarine system: Implication for the global coastal and blue water CO budgets. *J. Geophys. Res. Oceans*, 113, C12020, doi:10.1029/2008JC004811

**Fichot C. G., S. Sathyendranath, and W. L. Miller** (2008). SeaUV and SeaUV<sub>C</sub>: Algorithms for the retrieval of diffuse attenuation coefficients (UV/Visible domain) from ocean color. *Remote Sens. Environ.*, 112(4), 1584-1602, doi:10.1016/j.rse.2007.08.009

## **INVITED ORAL PRESENTATIONS**

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### **AGU Fall Meeting** (December 2014)

→ “Assessing the Fate of Terrigenous Dissolved Organic Carbon in River-influenced Ocean Margins.”  
in Biogeosciences Session: “Variation in Dissolved Organic Matter Composition and Transport as Indicators of Ecological Processes and Watershed Dynamics.”

### **ASLO Emerging Issue Workshop: New Orleans, LA** (February 2013)

→ “Linking Optical and Chemical Properties of Dissolved Organic Matter in Natural Waters”

### **Dissertations in Chemical Oceanography (DISCO) Symposium** (October 2012).

→ “Fate and transformations of terrigenous dissolved organic matter in the ocean”

## **OTHER CONTRIBUTED PRESENTATIONS and ABSTRACTS**

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### *International Meetings*

**AGU Fall meeting** (December 2014). San Francisco, CA, USA. *Oral+Poster*.

**8<sup>th</sup> Biennial Bay-Delta Science Conference** (October 2014). Sacramento, CA, USA. *Poster*.

**Ocean Optics XXII meeting** (October 2014). Portland, ME, USA. *Poster*.

**Aquatic Sciences 2013 meeting** (February 2013). New Orleans, LA, USA. *Oral*.

**Ocean Sciences 2012 meeting** (February 2012). Salt Lake City, UT, USA. *Oral+Poster*.

**Ocean Optics XX meeting** (September 2010). Anchorage, AK, USA. *Oral+Poster*.

**Ocean Sciences 2010 meeting** (February 2010). Portland, OR, USA. *Poster*.

**Ocean Sciences 2008 meeting** (February 2008). Orlando, FL, USA. *Oral*.

**Ocean Optics XVIII meeting** (October 2006). Montreal, QC, Canada. *Poster*.

**Ocean Sciences 2006 meeting** (February 2006). Honolulu, HI, USA. *Oral*.

**Ocean Optics XVII meeting** (October 2004). Fremantle, WA, Australia. *Poster*.

**Ocean Sciences 2004 meeting** (February 2004). Honolulu, HI, USA. *Poster*.

**Ocean Optics XVI meeting** (November 2002). Santa Fe, NM, USA. *Poster*.

### *Others*

**Graduate student day 2012** (March 2012). University of South Carolina.

**School of Earth and Ocean Sciences** (February 2012). University of South Carolina.

**School of Earth and Ocean Sciences** (February 2011). University of South Carolina.

**GulfCarbon project workshop** (September 2010). University of Georgia

**Departmental Seminar** (April 2007). University of Georgia

## **WORKSHOP PARTICIPATION**

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**HyspIRI Science and Applications Workshop** (Caltech, October 2014)

**Western States Water Council Remote Sensing Workshop** (JPL, August 2014)

**Keck Institute for Space Studies Workshop: Autonomous Science to Forge a Breakthrough in Quantifying the Global Ocean Carbon Budget** (Caltech, January 2014)

**Gulf of Mexico Coastal Carbon Synthesis Workshop** (St-Petersburg, FL, March 2013)

**ASLO Emerging Issue Workshop: Linking Optical and Chemical Properties of Dissolved Organic Matter in Natural Waters** (New Orleans, LA, February 2013)

**GulfCarbon Workshop** (Athens, GA, September 2010)

## **AFFILIATIONS**

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**American Geophysical Union (AGU)**  
**Association for the Scientists of Limnology and Oceanography (ASLO)**  
**The Oceanography Society (TOS)**